2026
28th ANNUAL SKILLS MANITOBA COMPETITION
CONTEST DESCRIPTION

CONTEST NAME: Electronics

CONTEST NO: 16

CATEGORY: Secondary– Maximum 8 competitors

CONTEST LOCATION: Red River College – Notre Dame Campus - Room TBA

CONTEST START TIME AND DURATION:

Orientation	8:15 am
Contest Starts	8:30 am
Lunch Break	11:00 am – 11:30 am
Contest Ends	2:15 pm

PURPOSE OF CHALLENGE:
To evaluate each competitors' skills and to recognize outstanding students for excellence and professionalism in the field of Electronics Technology

SKILLS AND KNOWLEDGE TO BE TESTED:
The contest will cover the theoretical and practical aspects of current state-of-the-art electronic industry standards. The competitor **may** be asked to demonstrate abilities in the following areas:

- Interpret electronic schematic diagrams, wiring diagrams, and technical specifications.
- Identify and test common electrical and electronic components.
- Construct, analyze and troubleshoot DC circuits including series resistance, parallel resistance, series-parallel resistance and switching circuits.

- Construct, analyze and troubleshoot AC circuits including capacitive, inductive and RLC circuits.
- Construct, analyze and troubleshoot digital circuits including TTL/CMOS gates, timers and optical devices.
- Apply the appropriate test procedures and equipment to a given situation.
- Interpret the observed values from the test equipment. (AC/DC voltages, currents and waveforms and circuit resistance).
- Identify basic systems of analog to digital and digital to analog conversion.
- Answer questions related to basic electrical/electronic theory.
- Construct, analyze and troubleshoot analog circuits including comparator circuits and regulated power supplies.
- Hand solder through-hole or surface mount components on a printed circuit board to acceptable industry standards.
- Hand de-solder components on a printed circuit board to acceptable industry standards.
- Reverse engineer an electronic circuit.
- Circuit fault finding.

POINT BREAKDOWN / 100

Item	Point Value/Percentage
Assembly and Testing	25%
Breadboarding Technique	25%
Circuit Analysis (Reverse Engineering)	25%
Measurement and Fault-Finding Technique	15%
Rework	10%

NATIONAL COMPETITION ELIGIBILITY:

- A mark of **70% or higher** must be scored by the gold medalist in each contest for them to attend the National Skills Competition

EQUIPMENT, TOOLS, AND MATERIALS TO BE PROVIDED BY COMMITTEE:

- 25-watt Solder Iron, Stand, Tip Cleaner, tips of choice.
- Hand vacuum extractor or Solder Wick
- Flux, liquid or paste
- Long nose pliers
- Side Cutters
- Wire Stripper
- Three sets of test leads (banana jack with alligator clips)

- "Third Hand" including magnifying glass
- Power bar, 4 or more outlets
- Desk Lamp
- Utility knife (exacto-knife)

All other equipment/materials required for contest but not supplied by competitor.

EQUIPMENT, TOOLS, AND MATERIALS TO BE SUPPLIED BY COMPETITOR:

- Screwdrivers; Slot, Philips – a precision screwdriver kit
- Pens, pencils, eraser, ruler
- Safety Glasses/Goggles
- 2 breadboards, minimum size each 2" x 6" (wire will be supplied)
- Calculator (not programmable)
- Hearing protection to block out some of the noise from other contestants

Students will be provided with instructions on any test equipment being used.

Technical Committee will inspect other tools for suitability.

WORKSITE SAFETY RULES / REQUIREMENTS:

Competitors are to be dressed in a clean and safe manner (no jewelry on hands or wrists).

Safety glasses must be worn for the soldering/desoldering project. Failure to comply with Tech Committee Members may result in disqualification from the competition at the discretion of the Committee.

SPECIAL CONDITIONS / ADDITIONAL INFORMATION:

In the event of a tie, the winner will be determined by the highest mark in the assembly and testing project will be declared the winner.

If a tie still exists then the winner will be determined by the highest mark in the breadboarding technique project.

If a tie still exists then the winner will be determined by the highest mark in the circuit analysis (reverse engineering) project.

THE IMPORTANCE OF ESSENTIAL SKILLS FOR CAREERS IN THE SKILLED TRADES AND TECHNOLOGY;

In response to the evolving labour market and changing skill needs, the Government of Canada has launched the new Skills for Success (former Essential Skills) model defining nine key skills needed by Canadians to participate in work, in education and training, and in modern society more broadly. SCC is currently working with Employment and Social Development Canada (ESDC) to bring awareness of the importance of these skills that are absolutely crucial for success in Trade and Technology careers. Part of this ongoing initiative requires the integration and identification of the Skills for Success in contest descriptions, projects, and project documents. The following 9 skills have been identified and validated as key skills for success for the workplace: 1.Numeracy,

2.Communication, 3.Collaboration, 4.Adaptability, 5.Reading, 6.Writing, 7.Problem Solving, 8.Creativity and Innovation, 9.Digital

TECHNICAL COMMITTEE MEMBERS CONTACT INFORMATION:

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